

IN THE CLAIMS:

Please amend the claims as follows:

1. (Cancelled)
- 2.(Currently Amended) The ~~chemical-mechanical polishing composition of claim 1~~ method of claim 14, wherein the hydroxylamine derivative comprises hydroxylamine nitrate, hydroxylamine sulfate, and/or hydroxylamine.
- 3.(Currently Amended) The ~~chemical-mechanical polishing composition~~ method of claim 2, wherein the hydroxylamine derivative is present in a total amount from about 1% to about 5% by weight of the composition.
- 4.(Currently Amended) The ~~chemical-mechanical polishing composition~~ method of claim ~~14~~ 1, wherein the corrosion inhibitor comprises benzotriazole.
- 5.(Currently Amended) The ~~chemical-mechanical polishing composition~~ method of claim 4, wherein the corrosion inhibitor consists essentially of benzotriazole.
- 6.(Currently Amended) The ~~chemical-mechanical polishing composition~~ method of claim 5, wherein the corrosion inhibitor is present in a total amount from about 0.01% to about 0.05% by weight of the composition.
- 7.(Currently Amended) The ~~chemical-mechanical polishing composition~~ method of claim ~~14~~ 1, wherein the water is present in a total amount from about 90% to about 99% by weight of the composition.
- 8.(Currently Amended) The ~~chemical-mechanical polishing composition~~ method of claim ~~14~~ 1, wherein the composition comprises ~~further comprising~~ a sufficient amount of an acid and/or a base to adjust the pH of the composition to a desired level between pH 2 and pH 12.

9.(Currently Amended) The ~~chemical mechanical polishing composition method~~ of claim 8, wherein the acid and/or base are present in a total amount from about 0.01% to about 2% by weight of the composition.

10.(Currently Amended) The ~~chemical mechanical polishing composition method~~ of claim 4 ~~14, wherein the composition further comprises the further comprising~~ one or more of the following: a two carbon atom linkage alkanolamine compound, a quaternary ammonium salt, a chelating agent, an organic solvent, a non-hydroxyl-containing amine compound, a surfactant, an additional oxidizing agent, and a non-abrasive additive.

11.(Cancelled)

12.(Cancelled)

13. .(Cancelled)

14(Currently Amended) A process for chemical mechanical polishing of a substrate comprising:

providing a substantially abrasive-free chemical mechanical polishing composition that comprises a hydroxylamine derivative, a corrosion inhibitor, water, and optionally a sufficient amount of an acid and/or a base to adjust the pH of the composition to a desired level, wherein the majority of the composition comprises water;

contacting the chemical mechanical polishing composition with a substrate having a metal oxide layer surface, upon which metal oxide surface a barrier layer is disposed, upon which barrier layer a metal layer is disposed; and

chemically mechanically polishing the substrate by contacting the substrate surface with an abrasive polishing pad at an applied pressure of not more than about 2 psi and by moving the pad in relation to the substrate,

wherein the removal rate of the barrier layer is greater than about 500 Å/min, and wherein the removal rate of the metal oxide layer is less than about 10 Å/min.

15. (Original) The process of claim 14, wherein the removal rate of the metal layer during the chemical mechanical polishing step is less than about 250 Å/min.

16. (Original) The process of claim 14, wherein the removal rate of the metal layer during the chemical mechanical polishing step is greater than about 10 Å/min.

17. (Original) The process of claim 14, wherein the removal rate of the barrier layer during the chemical mechanical polishing step is less than about 750 Å/min.

18. (Original) The process of claim 14, wherein the abrasive-free chemical mechanical polishing composition is substantially free of one or more of the following: hydroxylamine, acid and/or base to adjust pH, two carbon atom linkage alkanolamine compounds, quaternary ammonium salts, chelating agents, organic solvents, non-hydroxyl-containing amine compounds, surfactants, additional oxidizing agents, and non-abrasive additives.

19. (Original) The process of claim 14, wherein the abrasive-free chemical mechanical polishing composition consists essentially of:

about 1% to about 5% by weight of a hydroxylamine derivative selected from the group consisting of hydroxylamine, hydroxylamine nitrate, hydroxylamine sulfate, and mixtures thereof;

about 0.01% to about 0.05% by weight of benzotriazole;

about 90% to 99% by weight of water; and

less than about 2% by weight of an acid and/or a base to adjust the pH of the composition to a desired level.

20. (Original) The process of claim 19, wherein the abrasive-free chemical mechanical polishing composition is substantially free of hydroxylamine.

21. (Original) The process of claim 14, wherein the metal layer of the substrate comprises copper.

22. (Original) The process of claim 21, wherein the barrier layer of the substrate comprises tantalum nitride.

23. (Original) The process of claim 14, wherein the barrier layer of the substrate comprises tantalum nitride.

24. (New) The process of claim 14, wherein the pH of the composition is about between 4 and 10.

25. (New) The process of claim 14, wherein the pH of the composition is about between 5.2 and 5.5.

26. (New) The process of claim 14, wherein the concentration of the hydroxylamine derivative is from about 0.2 to about 20%, and wherein the concentration of the acid and/or a base to adjust the pH of the composition is from about 0.01 to about 1%.

27. (New) A process for chemical mechanical polishing of a substrate comprising:
providing a substantially abrasive-free chemical mechanical polishing composition that comprises a hydroxylamine derivative, a corrosion inhibitor, water, and optionally a sufficient amount of an acid and/or a base to adjust the pH of the composition to a desired level, wherein the majority of the composition comprises water;

contacting the chemical mechanical polishing composition with a substrate having a metal oxide layer surface, upon which metal oxide surface a barrier layer is disposed, upon which barrier layer a metal layer is disposed; and

chemically mechanically polishing the substrate by contacting the substrate surface with an abrasive polishing pad at an applied pressure of not more than about 2 psi and by moving the pad in relation to the substrate,

wherein the removal rate of the barrier layer is between 200 and 580 Å/min, and wherein the removal rate of the metal oxide layer is less than about 10 Å/min.